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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,813	01/15/2004	Edgar B. Cahoon	BB1465USCNT	9069

23906 7590 06/22/2006

E I DU PONT DE NEMOURS AND COMPANY
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WILMINGTON, DE 19805

EXAMINER

KAM, CHIH MIN

ART UNIT PAPER NUMBER

1656

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/759,813	Applicant(s) CAHOON, EDGAR B.	
	Examiner Chih-Min Kam	Art Unit 1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-30 is/are pending in the application.
- 4a) Of the above claim(s) 25,27 and 30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-24,26,28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/1/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-6, directed to a polynucleotide encoding a cytochrome P450-dependent enzyme, a chimeric construct and a host cell comprising the chimeric construct in the reply and amendment filed on April 20, 2006 is acknowledged. In the amendment, claims 1-10 have been cancelled and new claims 11-30 have been added. Since the new claims 25, 27 and 30, which are directed to a transgenic plant or a seed comprising the polynucleotide and a method for producing a transgenic plant, classified in class 800, subclass 278, belong to a different group other than Group I, These claims are not included in Group I for examination. Therefore, claims 11-24, 26, 28 and 29 are examined.

Information Disclosure Statement

2. The references listed at pages 5-10 of Information Disclosure Statement filed June 1, 2004 are crossed out and not considered because they are not found in the file of parent application, 09/909,566 (see attached form-1449).

Informalities

The disclosure is objected to because of the following informalities:

3. It is noted that the title in the ADS (application data sheet) and Oath is different from the title recited on the page 1 of the specification and on the abstract. Appropriate clarification is required.
4. The specification does not recite the continuation data in the first paragraph of page 1. Appropriate clarification is required.

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5. Fig. 1 recites two amino acid sequences, however, only one sequence identifier, "SEQ ID NO:2" is given in the description of Fig. 1 at page 3, lines 33-35. It appears both sequences are listed in the Sequence Listing, applicant is required to provide a proper "SEQ ID NO:" for the second sequence.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 23 and 24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim is drawn to a cell without recitation of "isolated". As written, the claim does not explicitly indicate the hand of man. Insertion of "isolated" in connection with a cell is suggested. See MPEP § 2105.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 11-20, 23, 24, 26, 28 and 29 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 11-20, 23, 24, 26, 28 and 29 are directed to a polynucleotide comprising:
a nucleotide sequence encoding a polypeptide which is a cytochrome P450 enzyme associated with the synthesis of delta12-epoxy fatty acids, wherein the polypeptide has at least 50%

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identities to a polypeptide of SEQ ID NO:2, or the full complement of the nucleotide sequence (claims 11-20); a cell comprising the polynucleotide (claims 23-24); a vector or a recombinant construct comprising the polynucleotide (claims 28 and 29); or a method for transforming a cell by introducing into a cell the polynucleotide (claim 26). While the specification identifies the cDNA clone from *Euphorbia lagascae* (i.e., eellc.pk002.i4; Example 1) and the nucleotide sequence of SEQ ID NO:1 which encodes the amino acid sequence of a cytochrome P450 enzyme (i.e., SEQ ID NO:2) associated with the synthesis of the epoxy group of vernolic acid from *Euphorbia lagascae* (Table 1; Example 3); discloses expression of *Euphorbia lagascae* EST cell eellc.pk002.i4 in *Saccharomyces cerevisiae* (Example 7); and further indicates a polynucleotide encoding a polypeptide which is a cytochrome P450 enzyme associated with the synthesis of delta12-epoxy fatty acids, wherein the polypeptide has at least 50% identities to a polypeptide of SEQ ID NO:2, or the complement of the nucleotide sequence, wherein the complement and the nucleotide sequence contain the same number of nucleotides and are 100% complementary (page 2, lines 23-29; page 9, lines 9-24), the specification does not provide a genus of variants for polynucleotides encoding a polypeptide that is functional in the synthesis of epoxy group of fatty acids and has at least 50% identities to a polypeptide of SEQ ID NO:2, or the full complement of the nucleotide sequences. The description on the nucleotide sequence of SEQ ID NO:1 which encodes a functional of SEQ ID NO:2 does not provide a written description for the genus of variants of nucleic acid sequences which encode a functional enzyme that is at least 50% identity to SEQ ID NO:2. Furthermore, there is no description of any particular structure to function/activity relationship in the peptide variants encoded by the polynucleotides. Without guidance on the correlation of structure to function/activity of peptide

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variants, one skilled in the art would not know what nucleotide sequence would encode a functional polypeptide that is at least 50% identity to SEQ ID NO:2, and how to identify a functional protein from various nucleotide sequences. The lack of description of the correlation of structure to function/activity of peptide variants encoded by polynucleotides and the lack of representative species for the polynucleotide variants encoding a functional protein as encompassed by the claims, applicants have failed to sufficiently describe the claimed invention, in such full, clear, concise terms that a skilled artisan would not recognize applicants were in possession of the claimed invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 11-24, 26, 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
9. Claims 11-24, 26, 28 and 29 are indefinite because of the use of the term "a cytochrome P450 enzyme associated with the synthesis of delta12-epoxy fatty acids". The term cited renders the claim indefinite, it is unclear which step in the synthesis of delta12-epoxy fatty acids the cytochrome P450 enzyme is associated with, since the synthesis of delta12-epoxy fatty acids contains multiple steps. Claims 12-24, 26, 28 and 29 are included in the rejection for being dependent on a rejected claim and not correcting the deficiency of the claim from which they depend.

Conclusion

10. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Min Kam whose telephone number is (571) 272-0948. The examiner can normally be reached on 8.00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathleen Kerr can be reached at 571-272-0931. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chih-Min Kam, Ph. D.
Primary Patent Examiner



**CHIH-MIN KAM
PATENT EXAMINER**

CMK

June 19, 2006